SVKM's
D. J. Sanghvi College of Engineering

Program: B.Tech in Mechanical Engineering **Academic Year: 2022** **Duration: 3 hours**
Date: 06.01.2023
Time: 10:30 am to 01:30 pm
Subject: Automobile Engineering (Semester VII) **Marks: 75**

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.
(1) This question paper contains one page.
(2) All Questions are Compulsory.
(3) All questions carry equal marks.
(4) Answer to each new question is to be started on a fresh page.
(5) Figures in the brackets on the right indicate full marks.
(6) Assume suitable data wherever required, but justify it.
(7) Draw the neat labelled diagrams, wherever necessary.

Question No.		Max. Marks
Q1 (a)	Explain with sketch construction and working of Synchromesh Gear box. **OR** Explain with sketch construction, working of single plate friction clutch.	[10] [10]
Q1 (b)	What is the necessity and working of differential.	[05]
Q2 (a)	Explain the requirements of steering system and explain with sketch (i) Camber (ii) king-pin inclination (iii) castor (iv) Toe-in and Toe-out **OR** Explain with sketch construction and working of hydraulic braking system.	[10] [10]
Q2 (b)	Write a short note on Antilock braking system.	[05]
Q3 (a)	Explain with sketch construction and working of mac-pherson strut type suspension used in cars.	[10]
Q3 (b)	Write a short note on radial ply and cross ply tyres. **OR** Explain open, semi integral structures.	[05] [05]
Q4 (a)	Explain with the help of neat sketch lead acid battery.	[08]
Q4 (b)	Explain in detail Bendix drive. **OR** Write a short note on starting system.	[07] [07]
Q5 (a)	**Write a short note on any three.** i. Adaptive Cruise Control (ACC) ii. Traction Control System (TCS) iii. Hill assist iv. Active and passive safety systems in automobiles v. Electronic Brake Distribution (EBD)	[05] [05] [05] [05] [05] [05]